**Wigner Function in Phase Coding QKD**[1] MARTIN SUDA, Austrian
Research Centers GmbH - ARC — Phase coding systems in quantum cryptography
use two largely separated fiber glass Mach-Zehnder (MZ) interferometers which
belong to Alice and Bob, respectively. If both partners adjust their phase shifters
accordingly, the time pulses behind the second MZ interferometer exhibit interference
effects which can be applied to the encoding-decoding procedure in quantum
key distribution. Using Gaussian wave packets, the energy and time spectra of those
interference effects are analyzed by means of the Wigner function taking into account
the wave length distribution, chromatic dispersion, absorption and the dimensions
of the interferometric set-up.

[1]EC/IST Integrated Project SECOQC

Martin Suda
Austrian Research Centers GmbH - ARC

Date submitted: 15 Nov 2006                        Electronic form version 1.4